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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,244	04/16/2004	Tae Soo Park	2080-3249	9627
35884 7590 06/20/2007 LEE, HONG, DEGERMAN, KANG & SCHMADEKA 660 S. FIGUEROA STREET Suite 2300 LOS ANGELES, CA 90017			EXAMINER CHANG, AUDREY Y	
			ART UNIT 2872	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/826,244

Applicant(s)

PARK, TAE SOO

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2007.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 5-10, 12, 14-17 and 19 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 5-10, 12, 14-17 and 19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

- This Office Action is in response to applicant's amendment filed on April 9, 2007, which has been entered into the file.
- By this amendment, the applicant has amended claims 1, 5-6, 8, 10, 12, and 14-15 and has canceled claims 11, 13 and 18.
- Claims 1, 5-10, 12, 14-17 and 19 remain pending in this application.

Response to Amendment

1. The amendment filed on **April 9, 2007** is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: claims 1 and 12 have been amended to include the phrase "wherein a portion of the convertible regions having no parallax image become transparent". The specification simply fails to disclose such and fails to give possible support for this feature.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 5-10, 12, 14-17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The reasons for rejection based on the added new matters are set forth in the paragraph above.

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4. Claims 1, 5-10, 12, 14-17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The **amended claims 1 and 12** and their respective dependent claims **fail** to disclose how could the three-dimensional image display device be enable by simply having a display panel and a mask with only transparent portions. It is not clear where does these “the opaque regions” of the mask as claimed in the amended claims 1 and 12 come. It is also not clear how does this mask cooperates with the display panel device to provide the claimed three-dimensional image display. A stereoscopic vision or image display general requires (i.e. the criterions) to have at least one left eye perspective image and a right eye perspective image displayed on the panel where the opaque and transparent portions of the mask are corresponding with the displayed perspective images to allow the left eye image to reach left eye of an observer and the right eye image to reach right eye of the observer. None of the crucial relationships are disclosed in the claims that make the claims non-enabling by simply having the elements claimed.

Claims 1 and 12 have been amended to include the phrase “a portion of the convertible regions having no parallax image becomes transparent”. This phrase is not making any sense. Firstly, the mask will NOT HAVE a parallax image. (It is also not clear what does this mean?). Secondly, if the portion of the convertible regions not correspond to a parallax image is transparent, then it will have the problem of introducing cross-talk between the neighboring parallax image to create noise. Also none of this is ever be taught or disclosed in the specification. All of the figures of the specification shows that the transparent regions are corresponding to parallax images in order for the display device to be operable.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. **Claims 1, 5-10, 12, 14-17 and 19 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 12 have been amended to include the phrase “each parallax image represents a different viewing angle” is confusing and indefinite since it is not clear how could the parallax image represents viewing angle. That is to say how can the an image represents an angle?

Claims 1 and 12 have been amended to include the phrase “the *opaque* regions of the mask...” that is confusing and indefinite since it is not clear where do these opaque regions come from? Also this phase is lacking proper antecedent basis from earlier part of the claim. The scopes of the claims are really unclear.

Claim 1 has been amended which makes the phrase “less than 1/3 of a size of a pixel display panel” recited in claim 7 confusing since it is not clear how does this pixel and the pixel size have anything to do the rest of the elements of the claims.

The applicant is respectfully requested to clarify ALL errors and discrepancies to make the claims in comply with the requirements of 35 USC 112, first and second paragraphs.

Claim Objections

7. **Claims 1, 5-10, 12, 14-17 and 19 are objected to because of the following informalities:**

(1). The amended phrase “a portion of the convertible region having no parallax image becomes transparent” recited in claims 1 and 12 is confusing since the mask will never have parallax image. It is not clear if the mask is made all transparent. If it is the case then the display device will not be able to work.

(2). It is not clear what is the *preset number* of the parallax images, recited in amended claims 10, 14 and 15. The number therefore seems to be **arbitrary**. The claims still fail to define what is

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considered to be the “preset number of parallax images”. There must be a physical condition for determining such “preset number of parallax images” however the claims fail to explicitly state such and makes it to be arbitrary. **Applicant fails to clarify this issue in the most current amendment.**

(3). The phrase “when the number of parallax image is *less than a preset number*” and the phrase “when the number of parallax images is *greater than the preset number*” recited in claims 10, 14 and 15 are confusing and indefinite since it is not clear what is considered to be the *preset number*. The scopes of the claims therefore are unclear. **Applicant fails to clarify this issue in the most current amendment.**

(4). Claim 17 is confusing and indefinite since it is not clear what does it mean by “detecting convertible regions that do not *overlay* to at least one parallax images”? All of the mask portions overlay to the parallax images since the mask covers the whole display panel.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1, 8-10, 12 and 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Isono et al (PN. 5,315,377).**

Isono et al teaches a *three-dimensional image display device* that is comprised of a *display panel* (46, Figures 1, 2, and 4) for displaying at least one parallax image (R1, L2, etc. as in Figure 2, or 2A, 2B ... as in Figure 4), a *parallax barrier panel* (28), serves as the *mask*, that is comprised of a *liquid crystal display panel* having segments forming *transparent regions* and implicitly *convertible regions* *alternatively* aligned along horizontal direction wherein the parallax barrier panel is placed in front of the

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display panel. As shown in Figure 2, the mask has transparent and opaque regions overlay at least one parallax image of the display panel, such that the transparent and opaque regions allow the parallax image having the right eye perspective to reach right eye of an observer and the parallax image having left eye perspective to reach left eye of the observer to provide stereoscopic vision. Isono et al teaches explicitly that in order to display more than one parallax images to provide multiple views, the area of the opaque regions for the mask is multiple of the area of the transparent regions and the multiplicity depends on the number of the parallax images. For instance in order to display 6 parallax images, the area for the opaque regions (5B) is five times of the area of the transparent regions, (B, please see Figure 4, column 10, lines 9-16). The parallax image representing an image of a perspective view from a viewing angle. The feature "wherein a portion of the convertible region having no parallax image becomes transparent" recited in claims 1 and 12 is wrong and therefore cannot be examined here.

With regard to claims 8-9 and 16, Isono et al teaches a controller (22) is provided to drive the parallax barrier panel or the mask and it is implicitly true that the conversion between transparent regions and opaque regions of the mask is dependent on the number of the parallax images. It is also implicitly true that two dimensional image display can be achieved by making the mask has all the transparent regions, (this is corresponding to 0 or 1 parallax image). The area for the opaque region is larger than the area of the transparent region.

With regard to claims 10, 14 and 15, as shown in Figures 2, 4, and 6A-6C, in order to provide different number of views or for different number of parallax images, the area for transparent regions of the mask is changed. If the preset number is 6, according to 6 parallax image, then in order for displaying 3 parallax images, more convertible regions have to be converted to transparent regions, (please see Figures 6A to 6C). For six views the area for the opaque region is 5B and the area for the transparent region is B, and for three views, the area for the opaque region is 2B and the area for the transparent region is B.

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With regard to claim 17, it is implicitly true that the controller can detect convertible regions of the parallax barrier panel in corresponding to the display panel.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 5-7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Eichenlaub (PN. 4,829,365).**

The three dimensional image display device taught by Isono et al as described for claims 1 and 12 above has met all the limitations of the claims.

This reference however does not teach explicitly that the transparent regions of the mask has upper and lower transparent regions that are not aligned in the vertical directions and with the left side of the upper transparent region aligned with the right side of the lower transparent regions. Eichenlaub in the same field of endeavor teaches an autostereoscopic image display apparatus that is comprised of a mask panel (46, Figures 13 and 14) placed in front of the display panel wherein the mask panel comprises transparent and opaque regions that are alternative arranged in the horizontal direction and with transparent regions that are not aligned in the vertical directions. The adjacent upper and lower transparent regions are aligned in the manner either the right side of the upper transparent region is aligned with the left side of the lower transparent region (as shown in Figure 13) or the left side of the upper transparent region is aligned with the right side of the lower transparent region, (as shown in Figure 14). These mask patterns allow the autostereoscopic image display apparatus to display parallax images

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also arranged in alternative or zig-zag manner to provide different viewing properties. It would then have been obvious to one skilled in the art to apply the teachings of Eichenlaub to modify the parallax barrier panel or the mask to have the non-aligned pattern for the benefit of allowing the display device to display parallax image having different arrangement to achieve different viewing qualities.

With regard to claim 7, the feature concerning the “pixel” is not explicitly defined and it really cannot be examined with details. Isono et al teaches that the transparent region (B) has a size that is a fraction of the image size or may be identified as pixel, (please see equation (2), of column 9).

Eichenlaub teaches that the rectangles of the transparent region is 1/6 of the pixels 23,33 and 34, (please see column 8, lines 38-45) to provide multiple “look-around” view.

12. Claims 1, 5-10, 12, 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Taniguchi et al (PN. 6,094,216) in view of the patent issued to Isono et al (PN. 5,315,377).

Claims 1 and 12 have been significantly amended that necessitate the new ground of rejection.

Taniguchi et al teaches a *stereoscopic image display apparatus* that is comprised of an *image display* (1, Figure 1) serves as the *display panel* for displaying a plurality of *parallax images* (Rs and Ls) and a *barrier* comprises a *spatial light modulator* (2), which may comprise a *liquid crystal display panel* (please see column 11, lines 9-17 and Figure 35), having *transparent regions* and *opaque regions*, served as the *convertible regions*, alternatively arranged, wherein the *barrier* serves as the *mask* such that the transparent regions allows the right eye perspective image (Rs) and left eye perspective images (Ls) to reach the right eye (AR) and left eye (AL) of an observer respectively and the *opaque regions* prevents the right eye perspective images to reach left eye and prevents the left eye perspective images to reach right eye to enable the stereoscopic viewing condition, (please see Figures 1, 2A, 2B, 4A, 4B, 15A, 15B,

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16B, 17, 18, 19A, 19B). The mask or the spatial light modulator (2) is placed *in front* of the image display panel. The transparent portions and the opaque portions *all correspond* to the parallax images displayed on the display panel. The opaque portions of the mask or barrier *block* the parallax images from reaching the eyes and the transparent portions allow the parallax images to reach the proper eyes of the observer (AR and AL as shown explicitly in Figure 1).

Claims 1 and 12 have been amended to include the phrase “the area of the opaque region of the mask are multiples of the area of the transparent regions”. Taniguchi et al teaches in the arrangement of the three-dimensional display device with observer at a distance C from the display panel to the observer, and the distance D between the display panel to the *mask* or the spatial light modulator (please see Figure 1), wherein the length for a segment of the transparent regions B' is related to the pixel dimension P as $B' = P(C-D)/C$, (please see column 12, lines 1-2). Taniguchi et al teaches that the number of the parallax images is 2 or $n=2$ in this case and the length segment for the convertible region or the opaque region is of the same length as of the transparent region (please see Figures 1 and 11A and 11B, column 12 lines 37-42) which means area for the transparent and opaque regions for the mask are determined by the number parallax image and the area for the opaque region is a *multiple* (multiplicity being one) of the area for the transparent regions. **Isono et al** in the same field of endeavor teaches a three dimensional image display device having a parallax barrier panel (28) placed in front of the image display panel, (46, Figure 2). Isono et al teaches that in order to display multiple number of views or parallax images the area of the opaque regions needs to be a multiple of the area for the transparent regions, (please see Figures 2, 4 and 6A to 6B). Isono et al teaches specifically that, for displaying six views with six parallax images (2A to 2F, Figure 4), the area of the opaque region is 5 times of the area for the transparent regions, (please see column 10, lines 9-16). It would then have been obvious to one skilled in the art to apply the teachings of **Isono et al** to modify the three dimensional image display device of Taniguchi et al to change the size of the opaque region to allow multiple views being displayed.

With regard to claims 10 and 12, Taniguchi et al teaches that a *controller* (please see Figure 1) is provided to convert a portion of the convertible regions into transparent regions depends on the number of the parallax images, (please see the explicit teachings of different transparent/opaque regions patterns for different parallax images arrangements shown in Figures 2A, 2B, 4A and 4B).

With regard to claims 5-6, Taniguchi et al teaches that the transparent regions of the mask or spatial light modulator do not aligned in the perpendicular direction, (please see Figure 4B). A left side upper transparent region aligned with a right side lower transparent region and a right side upper transparent region aligned with a left side lower transparent region as shown in Figures 4B, 16B, 17, 19B, 20B).

With regard to claim 7, the feature concerning the size of the transparent regions comparing to “pixel” cannot be examined in details since the “pixel” is not defined. **Taniguchi** et al teaches that for *full color display*, (Figure 30), the right eye parallax image and the left eye parallax image are each including red, blue and green pixels. The full color right eye parallax image pixel therefore is represented by three color pixels. This implicitly means that in order for the transparent region to properly direct each of the color pixel to the proper eye, the transparent regions has to have a size in accordance with the size of the color pixel, which therefore will be *one third* of the original pixel. Such modification therefore is obvious to one skilled in the art for the benefit of allowing the full color stereoscopic image be properly observed.

With regard to claims 8, 9, 17 and 18, Taniguchi et al teaches the convertible regions of the spatial light modulator or mask are converted to transparent regions for the regions of display panel displays no parallax images, (please see Figure 18).

With regard to claims 10, and 14-16, Taniguchi et al teaches that the number of transparent regions and therefore the size of transparent regions is in accordance with the number of parallax images, (please see Figures 4A, 4B, 17). The opaque regions (in the vertical sense) are larger than the transparent

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regions as shown in Figure 4B. Isono et al, as shown in Figures 2, 4, and 6A-6C, teaches in order to provide different number of views or for different number of parallax images, the area for transparent regions of the mask is changed. If the preset number is 6, according to 6 parallax image, then in order for displaying 3 parallax images, more convertible regions have to be converted to transparent regions, (please see Figures 6A to 6C). For six views the area for the opaque region is 5B and the area for the transparent region is B, and for three views, the area for the opaque region is 2B and the area for the transparent region is B. Isono et al teaches that the size of the opaque region is larger than the size of the transparent region, (please see Figures 6A to 6C).

With regard to claim 19, Taniguchi et al teaches that the controller aligns the transparent and opaque regions of the spatial light modulator or mask along horizontal direction, (please see Figure 4B).

Response to Arguments

13. Applicant's arguments with respect to **amended** claims 1 and 12 have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's arguments are mainly based on the amendments to the claims and they have been fully addressed for the reasons stated above.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action

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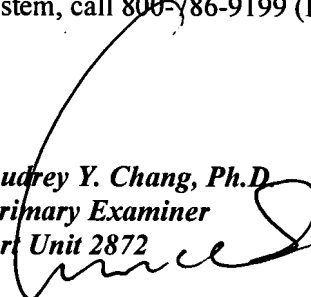
is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.